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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,356	02/11/2005	Henri Arnold De Bruyn	18005	7585

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EXAMINER	
THEODORE, MAGALI P	

ART UNIT	PAPER NUMBER
1791	

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07/30/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/501,356	DE BRUYN ET AL.	
	Examiner	Art Unit	
	Magali P. Théodore	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 June 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4,6,8-14,16-20,40,41,43,45,47-57 and 64-66* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,6,8-14,16-20,40,41,43,45,47-57 and 64-66* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant's amendment filed June 18, 2009 was received.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

Claims 1-2, 6, 8-9, 12-14, 16-20, 40-41, 45, 47-48, 52-56, 57 and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over **de Bruyn** (WO 00/40669) in view of Terpstra et al. (US 5,523,049), henceforth **Terpstra**.

Regarding **claims 1**, **6**, **40** and **45**, de Bruyn discloses mixing a polar solvent (water, 5:19-21), a urea formaldehyde precondensate (1:11-14, 2:1-2), additional urea (1:15-16) and an acid (citric acid, 3:8-10), mixing resulting the binder composition with soil and allowing the binder to set (7:11-12). As de Bruyn shows in Example 3 (10:22 - p 11-16), the binder's setting time is inherently determined by the end pH. Of two binder compositions that vary only in their acidity, the more acidic "third mixture," with an end pH of 3.85, sets in 65 minutes (11:5-7, 10-11), in contrast to the more basic "second mixture" which has a pH of 5.45 and sets in 1400 minutes (11:3-4, 9-10).

De Bruyn does not explicitly teach adjusting the binder's pH. However, de Bruyn teaches that the binder's end pH is "most preferably between 3.5 and 5" (4:5-6), well within the range of 2.0 to 5.3 recited by the claim. Since de Bruyn states a preference of pH in this range, it would have been obvious to one of ordinary skill in the art to adjust the pH to a value within that range.

De Bruyn does not teach using a complex fatty acid derived from the oxidation of vegetable sugars as a binding promoter. However, Terpstra teaches adding humic acid to a urea-formaldehyde binder to "achieve higher loading of the powder particles in the binder" (4:22-29). Therefore it would have been obvious to one of ordinary skill in the art to add humic acid to the binder taught by de Bruyn because Terpstra teaches that humic acid helps integrate the particles with the binder. *Alternatively*, it would have been obvious to one of ordinary skill in the art to combine the use of humic acid with the steps taught by de Bruyn to achieve predictable results with a reasonable expectation of success.

Regarding **claims 2** and **41**, de Bruyn teaches that the polar solvent is water (5:19-21).

Regarding **claims 8-9** and **47-48**, de Bruyn teaches mixing in an anionic bitumen emulsion prior to setting (5:7-8, 15:7-8, 20-21).

Regarding **claim 12**, de Bruyn teaches adding silicones, silanes, oils, anti-corrosion agents, ultraviolet light blocking agents, biocides, pH buffers, cement, ammonia, ammonium salts, plasticizers (4:9-13) or phenols (4:18) to the binding mixture before setting.

Regarding **claims 13** and **52**, de Bruyn teaches that the plasticizers may be phthalates, hydrocarbons, acetates or glycols (4:15-16).

Regarding **claims 14** and **53**, de Bruyn teaches that the ultraviolet light blocking agents may be organic phenols, phosphates or inorganic oxides (4:18-19).

Regarding **claims 16-17** and **54-55**, de Bruyn teaches that the end molar ratio of formaldehyde to urea in the binder is "between 3:1 and 1:1, and most preferably between 2:1 and 1:1" (2:13-16). These ranges cover that cited by the claim, 1.5:1 to 2.5:1.

Regarding **claim 18**, de Bruyn teaches that aggregate matrix maybe compacted into a mold before setting (7:5).

Regarding **claims 19-20** and **56-57**, de Bruyn teaches that the acid is citric acid (3:8).

Regarding **claim 66**, de Bruyn teaches making roads, walls, floors, foundations, ponds, dams, tanks, canals, embankments, railway lines, tunnels, pylons, poles, pipes, landing strips, grouting, sports fields, artificial rocks, statues, and decorative stones (7:15-25). De Bruyn also teaches making bricks (7:5).

Claims 10-11 and 49-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over **de Bruyn** in view of **Terpstra** as applied to claims 1 and 40 above, and further in view of **Prather** (US 4,376,088).

Regarding **claims 10-11** and **49-50**, de Bruyn does not teach mixing in a surfactant as a binding promoter. However, Prather teaches adding the dodecylbenzene sulfonic acid (2:5, 7:49,:59) to a binder composition (1:64-68) to promote uniform binding by disperse the binding agent in an aqueous solution (5:17-26) and later to facilitate separation of the shaped article and the shaping means (1:46-51). Therefore it would have been obvious to one of ordinary skill in the art to mix in

dodecylbenzene to the binder taught by de Bruyn because Prather teaches using dodecylbenzene sulfonic acid both to as a surfactant and as a release agent. *Alternatively*, it would have been obvious to one of ordinary skill in the art to combine the use of dodecylbenzene sulfonic acid with the steps taught by de Bruyn to achieve predictable results with a reasonable expectation of success.

Claims 4, 43, and 64-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over **de Bruyn** in view of **Terpstra** as applied to claims 1 and 40 above, and further in view of in view of Markessini et al. (US 4,886,854), henceforth **Markessini**.

Regarding **claims 4**, **43**, and **64-65**, De Bruyn does not teach including a sugar in the binder composition. However, Markessini teaches combining glucose, fructose, sucrose or a mixture thereof (2:60-64) with a urea and formaldehyde (2:9-11) to make a binding composition that is safer for the environment and for workers than resin (1:13-19). Therefore it would have been obvious to one of ordinary skill in the art to add glucose, fructose, sucrose or a mixture thereof to the urea-formaldehyde binder taught by de Bruyn because Markessini teaches this combination as a safe and effective substitute for resin. *Alternatively*, it would have been obvious to one of ordinary skill in the art to combine the use of glucose, fructose, sucrose or a mixture thereof with the steps taught by de Bruyn to achieve predictable results with a reasonable expectation of success.

Response to Arguments

Applicant's arguments filed June 18, 2009 have been fully considered but they are not persuasive.

Applicant argues that Terpstra does not teach soil or a road construction material. In response to Applicant's argument, Terpstra is not relied upon to teach soil or a road construction material; de Bruyn already does that.

Applicant argues that there is no motivation to combine the teachings of Terpstra with those of de Bruyn. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Terpstra's invention is drawn to a method of binding particles with a binder (figure 3) made with urea-formaldehyde (4:24). The utility of humic acid in that context would have been available to someone of ordinary skill in the art and it would have been obvious to that person to apply that knowledge in binding soil.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Magali P. Théodore whose telephone number is (571)

270-3960. The examiner can normally be reached on Monday through Friday 9:00 a.m. to 6:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina A. Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Magali P. Théodore/
Examiner, Art Unit 1791

/Christina Johnson/

Supervisory Patent Examiner, Art Unit 1791